National Institute of Environmental Health Sciences

Ambient biomass smoke and cardio-respiratory hospital admissions in Darwin, Australia

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Abstract:

BACKGROUND: Increasing severe vegetation fires worldwide has been attributed to both global environmental change and land management practices. However there is little evidence concerning the population health effects of outdoor air pollution derived from biomass fires. Frequent seasonal bushfires near Darwin, Australia provide an opportunity to examine this issue. We examined the relationship between atmospheric particle loadings 5 mm, public holidays and holiday periods. RESULTS: PM10 ranged from 6.4 - 70.0 microg/m3 (mean 19.1). 2466 admissions were examined of which 23% were for Indigenous people. There was a positive relationship between PM10 and admissions for all respiratory conditions (OR 1.08 95%CI 0.98-1.18) with a larger magnitude in the Indigenous subpopulation (OR1.17 95% CI 0.98-1.40). While there was no relationship between PM10 and cardiovascular admissions overall, there was a positive association with ischaemic heart disease in Indigenous people, greatest at a lag of 3 days (OR 1.71 95%CI 1.14-2.55). CONCLUSION: PM10 derived from vegetation fires was predominantly associated with respiratory rather than cardiovascular admissions. This outcome is consistent with the few available studies of ambient biomass smoke pollution. Indigenous people appear to be at higher risk of cardio-respiratory hospital admissions associated with exposure to PM10.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2220001

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Extreme Weather Event, Meteorological Factors, Precipitation, Temperature

Air Pollution: Particulate Matter

Extreme Weather Event: Wildfires

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal, Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Respiratory Effect

Cardiovascular Effect: Heart Attack, Other Cardiovascular Effect

Cardiovascular Disease (other): cardiovascular emergency hospital admissions

Respiratory Effect: Asthma, Chronic Obstructive Pulmonary Disease, Other Respiratory Effect

Respiratory Condition (other) : respiratory emergency hospital admissions

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children, Racial/Ethnic Subgroup

Other Racial/Ethnic Subgroup: Indigenous Australians

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified